CLAIMS

1. A method for packet processing for data transmission over an optical fiber, the method comprising the steps of:

segmenting an incoming bit stream;

adding a tag to a header of each segment, each tag including data identifying a route between a source and a destination end-point of the bit stream;

encapsulating said tagged segment into a Point-to-Point Protocol (PPP) packet in a frame; and

mapping the encapsulated packet into a transmission frame for transmission over an optical fiber.

2. The method according to claim 1, wherein said tagged segment is encapsulated into a PPP packet in a High bit rate Digital Link Control (HDLC)-like frame.

3. The method according to claim 1, wherein said transmission frame is a Packet over SONET (PoS) frame.

4. The method according to claim 1, wherein said transmission frame is a Packet over SDH (PoS) frame.

5. The method according to claim 2, wherein said transmission frame is a Packet over SONET (PoS) frame.

6. The method according to claim 2, wherein said transmission frame is a Packet over SDH (PoS) frame.

7. The method according to claim 3, further comprising the step of scrambling the encapsulated packet before the step of mapping into a transmission frame.

8. The method according to claim 1, wherein said step of adding a tag includes adding an MPLS tag.

9. The method according to claim 1, further comprising the steps of:

de-packing said transmission frame in a receiver to retrieve said encapsulated PPP packet;

de-capsulating said encapsulated PPP packet to retrieve said tagged segment of a bit stream;

stripping off the tag to retrieve said segment of a bit stream; and

assembling a plurality of said segments to re-create the original bit stream.

10. The method according to claim 9, further comprising the step of unscrambling a scrambled encapsulated PPP packet, after the step of de-packing.

11. The method according to claim 5, further comprising the steps of:

de-packing said Packet over SONET packet in a receiver to retrieve said encapsulated PPP packet in HDLC-like form;

de-capsulating said encapsulated PPP packet to retrieve said tagged segment of a bit stream;

stripping off the tag to retrieve said segment of a bit stream; and

assembling a plurality of said segments to re-create the original bit stream.

12. An engine for packet processing and data transmission, the engine comprising:

a segmentation module for segmenting an incoming bit stream;

a tagging module for adding a tag to a header of each segment, each tag including data identifying a route between a source and a destination end-point of said bit stream;

an encapsulating module for encapsulating the tagged segment into a Point-to-Point Protocol (PPP) packet in a frame; and

a mapping module for mapping the encapsulated packet into a transmission frame for transmission over an optical fiber.

13. The engine according to claim 12, wherein said PPP packet is encapsulated in a High bit rate Digital Link Control (HDLC)-like frame.

14. The engine according to claim 12 wherein said transmission frame is a Packet over SONET/SDH (PoS) frame.

15. The engine according to claim 13 wherein said transmission frame is a Packet over SONET/SDH (PoS) frame.

16. The engine according to claim 12, wherein said tagging module is arranged to add an MPLS tag to a header of each segment